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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,765	05/02/2006	Bradley Roy Clark	3836.04US01	1623
24113	7590	03/13/2007	EXAMINER	
PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.			MILLIKIN, ANDREW R	
4800 IDS CENTER			ART UNIT	PAPER NUMBER
80 SOUTH 8TH STREET			2837	
MINNEAPOLIS, MN 55402-2100				
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	03/13/2007		PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/561,765	CLARK, BRADLEY ROY
	Examiner Andrew Millikin	Art Unit 2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 02 May 2006.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 21 December 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 122105.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because they contain illegible text (see Fig. 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, & 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fishman (U.S. Patent No. 5,817,966, hereafter '966) with reference to Lace (U.S. Patent No. 5,557,058, hereafter '058).

Claims 1, 2: '966 teaches a device (Fig. 21) for mixing the outputs of two sensors (128, 428) including: a first input for receiving a signal from at least one first sensor (top of (500)); a second input for receiving a signal from at least one second sensor (top of (510)); a low pass filter for passing signal components of the first input signal below a first frequency (500); a high pass filter for passing signal components of the second input signal above a second frequency (510); and a mixing circuit for combining the signals passed by the low pass filter and the high pass filter to form a combined output signal (520); but does not explicitly teach a control means for varying the first frequency. However, it is well known in the art that no two pickups have identical operating characteristics (see '058, column 6, lines 16-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have allowed the user of '966 to vary the parameters of the filters (500, 510) in order to have allowed users to set the filters according to their specific set of transducers.

Claim 2: It is inherent that high pass and low pass filters pass frequencies above and below (respectively) their respective corner frequencies.

Claim 3: The device of '966 is capable of having the low pass and high pass corner frequencies set near enough to one another in order for there to be overlap in passed frequencies.

Claim 4: The device of '966 is capable of having the low pass and high pass corner frequencies set to provide a substantially uniform overall response in the combined output signal.

Claim 5: The device of '966 will exhibit overlap in passed frequencies whenever the low pass and high pass corner frequencies are close enough (or equal) to one another. If the low pass corner frequency is set to its minimum and the high pass corner frequency is set to the same, the crossover will still exist.

Claim 9: '966 teaches an attenuator for varying a level of the signal passed by the filters to the mixing circuit (column 12, lines 49-51).

Claim 10: The device of '966 is capable of simultaneously varying the first frequency of the low pass filter and the level of the signal passed by the high pass filter.

Claim 11: The device of '966 is capable of extending the range of frequencies passed by the low pass filter while the attenuating level of the signal passed by the high pass filter and of reducing the range of frequencies passed by the low pass filter while increasing the level of the signal passed by the high pass filter, since the filters are independent entities.

4. Claims 6-8 & 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over '966 and '058 as applied to Claims 1 & 5 above and further with reference to Furmer (U.S. Patent No. 4,251,688, hereafter '688).

Claims 6, 7: Low pass filters normally pass bass, which is well known in the art to be frequencies below about 750 Hz (see '688, column 18, line 31). It would have been

obvious to one of ordinary skill in the art at the time the invention was made to have set the minimum value of the low pass filter to 750 Hz in order to have passed the bass sounds at all times.

Claim 8: It is well known in the art that the human ear can only hear from a minimum of about 20 Hz to a maximum of about 20 kHz. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the low pass filter of '966 capable of passing frequencies from its minimum value up to at least 10 kHz in order to have retained as much fidelity as possible.

Claims 12, 13: Low pass filters normally pass bass, which is well known in the art to be frequencies below about 750 Hz (see '688, column 18, line 31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have set the corner frequency of the high pass filter to 750 Hz in order to have passed the mid- and high-range frequencies.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over '966 in view of Carriveau (U.S. Patent No. 4,913,024, hereafter '024). '966 teaches the mixing device according to claim 1, but does not teach a pre-amplifier incorporating the mixing device. '024 teaches that pre-amplifiers can incorporate mixing devices (150) in order to guarantee that the impedance of multiple pickups will be appropriately matched, as well as mixed (column 5, lines 64-68 & column 6, lines 1-2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated

the mixing device of '966 with an amplifier in order to have guaranteed that the impedance of multiple pickups would be appropriately matched, as well as mixed.

6. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over '966 in view of '024 as applied to claim 14, and further in view of Chaki (U.S. Patent No. 3,733,425, hereafter '425).

'966 and '024 teach a pre-amplifier according to claim 14 and an under saddle sensor connectable to the first input of the mixing device (see column 4, lines 21-44; column 12, lines 14-56), but does not teach that a second sensor attached to the inside of the soundboard of the guitar is connectable to the second input of the mixing device. '425 teaches attaching a piezoelectric element to the inside of the soundboard of a guitar in order to sense a tone very similar to the way a guitar sounds naturally (column 3, lines 41-45). '966 teaches that it is preferable to use different types of piezoelectric transducers in order to pick up vibrations of different wavelengths at different intensities (column 12, lines 33-36). As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the sensor of '425 with the invention of '966 in order to enable detection of even more different wavelengths and intensities of sound, particularly ones that are very similar to the way a guitar sounds naturally.

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over '966, '024, and '425 as applied to claim 17 above and further in view of Baggs (U.S. Patent No. 4,989,491, hereafter '491).

'966, '024, and '425 teach an acoustic guitar according to claim 17, but do not explicitly teach attaching another sensor to the rear panel of the guitar. '491 teaches that attaching resonator rods and corresponding pick-ups to the interior surface of the back of a guitar helps to enhance the quality of the sound produced by the instrument (column 1, lines 8-12; column 9, lines 18-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the resonator rods of '491 along with the invention of '966 and the piezoelectric element of '425 in order to have enabled maximum detection of different wavelengths and intensities of sounds and in order to have enhanced the quality of the sound.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Millikin whose telephone number is 571-270-1265. The examiner can normally be reached on M-R 7:30-5 and 7:30-4 Alternating Fridays (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*[Handwritten Signature]*

*[Handwritten Signature]*  
CHRISTIAN DONOVAN, EXAMINER  
SUPERVISOR